Anvil of Ceres: The Confederate Foundry at Waller Creek

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Nine months after Ft. Sumter, in the Confederacy's westernmost state the Texas legislature enacted the means to acquire ordnance for protection of the state and the new country that it had joined in March 1861. The Ninth Legislature created a board with the authority to cast artillery and obtain other implements of war. Known as the Texas Military Board, it used money and state assets to establish, in Austin, a foundry on the banks of Waller Creek where the board hoped to produce military ordnance sufficient to equip locally raised units with bronze six-pound field pieces. The foundry's major achievement, however, would be its support of regional farmers. Blacksmiths and mechanics were scarce across rural Texas, and the outbreak of the Civil War led many of them into military service. The state foundry at Waller Creek filled the gap created by the absence of these men, thereby redeeming its failure to produce artillery.[1]

The Texas Military Board became the only governmental agency charged specifically with providing for the state's wartime defense. The Ninth Texas Legislature established the Texas Military Board on January 11, 1862. Governor Francis R. Lubbock, Comptroller C. R. Johns, and Treasurer C. H. Randolph comprised the three-member board. Section one of the act gave five hundred thousand dollars in bonds to the board for procuring and manufacturing arms and ordnance in defense of the state. Section five of the act charged the board to ". . . establish a foundry for the manufacture of ordnance . . . at such place or places as said Board may select."[2]

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[1] Halsey, Ashley, Jr., "South Carolina Began Preparing for War in 1851," *Civil War Times Illustrated* (Oct., 1963), 8–10.

[2] Act of January 11, 1862, "Legislation," box 2–10/306, Texas State Foundry Collection 1863–1865; cited hereafter as Foundry Collection (Texas State Archives, Austin); Charles W. Ramsdell, "The Texas State Military Board, 1862–1865," *Southwestern Historical Quarterly*, 27 (Apr., 1924), 253–275; Julia L. Vivian, "Military Board of Texas," *The Handbook of Texas Online*, http://www.tsha.utexas.edu/handbook/online/articles/view/GG/dlgl.html.

The Texas Military Board chose Austin, the state capital, to locate the state foundry where they intended to manufacture ordnance. Austin was located in Travis County, where the economy was based predominantly on agriculture, like so much of the rest of the state. Records do not indicate why the military board selected Austin over Galveston, where Ebenezer Nichols had already established a foundry and had provided a home to Gen. John Bankhead Magruder, the commander of the Department of Texas. If Governor Lubbock and the other board members felt that ordnance production was a function of the state, then locating the facility in the state capital on state land made sense. The foundry's operating capital came from proceeds of the Texas legislature's disposition of United States Indemnification bonds, in a potentially controversial decision. It is possible Lubbock intended to keep the foundry close to the board to deflect any questions about the foundry's financial support. Whatever the reasoning, by the beginning of the summer 1862 the first agent had been selected and put to work. To acquire the foundry's tools and machinery, the board secured the release of William Carton from military service in July 1862, stating that he "is in the employ of the Board as the superintendent of the State Foundry."[3]

Acting on instructions sent to him in June 1862, Carton began to collect equipment for the Waller Creek facility. Austin was not a manufacturing center; the capital city had a saddlery, a wagon factory, tin and sheet metal works, and other light industry, but no enterprise that could fabricate ordnance. Cannon production required heavy machinery the likes of which did not exist in Austin. The intricate business of casting molten metal required steam-powered lathes and drill presses as well as experienced men who knew how to use them. Probably because Carton knew that Galveston had at least one enterprise making steam engines and boilers, he left Austin for the Gulf Coast. In early July Carton reported the first installment of equipment dedicated to heavy-weapons production. From the Star Foundry Company he acquired a steam engine, a drill press, three pulleys, and an iron flask (a device for securing molds used in metal casting), paying $3,151. Carton arranged through the Galveston provost marshal for the heavy machinery's consignment to L. C. Cunningham and Co., a freight company, for delivery to the foundry site since no railway line reached all the way into Austin. To augment this capital inventory, Carton called on Hiram Close, a Galveston industrialist, who sold Carton three lathes and 835 pounds of two-and-a-half-inch

[3] Francis R. Lubbock, *Six Decades in Texas* (Austin: Ben C. Jones, 1900), 363; P. DeCordova on behalf of the Texas Military Board, July 31, 1862, box 2-10/304, Foundry Collection. Texas received the U.S. Indemnity bonds as a part of the 1850 boundary compromise. For further information on the bonds, see E. T. Miller, "The State Finances of Texas," *Quarterly of the Texas State Historical Association,* 14 (July, 1910), 1–23.

round iron for $2,125. During this same trip, Carton bought additional pulleys and casings, leaving instructions with the Houston provost marshall to have these items in Austin no later than July 21. Adding miscellaneous expenses of $876 (probably freight and Carton's travel expenses), the initial capital acquisitions cost the board $6,702. By the end of July 1862 the Waller Creek foundry had acquired its first major capital inventory.[4]

Recruiting skilled mechanics proved as difficult as locating and acquiring the foundry's machinery. To provide the military with line soldiers while retaining the services of critical mechanics, the Confederacy passed the first of three conscription laws in April 1862. This first law contained no specific exemptions, however, and had to be amended by a separate exclusions act. The second conscription law (September 1862) excluded wagonmakers, mechanics, and other selected occupations. Even in June 1862, finding experienced foundry workers proved difficult because the military had recruited many of them for service in local units.[5]

On January 9, 1863, Carton reported to the Travis County enrolling officer a total of nineteen men (including Carton) employed "for manufacturing arms." Though dwarfed by the nine hundred workers employed by Virginia's Tredegar Iron Works or the 450 workers at Alabama's Shelby Iron Works, the Texas State Foundry employed a sizable number of men, considering the region and its frontier environment. Carton's January letter provides an interesting profile of the foundry's men. Eight of them, including Carton, were furloughed from active military units to the State Foundry. Two of the men, J. M. Bennet and A. R. Roessler, were exempt from military service because of disability. Two men came from Carter's Regiment, one of them "detailed for duty" and the other "discharged for disability." Two of the foundry crew, John Simpson and J. A. Anderson, were referred to as "an alien and has papers." Three of the men were under forty years of age (significant, perhaps, since the first conscription law applied to men between the ages of eighteen and thirty-five).[6]

Men and machinery began to gather on the banks of Waller Creek for the express purpose of producing guns. From July to September 1862

[4] Clara H. Lewis and John R. Stockton, "Manufacturing Industries," *The Handbook of Texas Online*, http://www.tsha.utexas.edu/handbook/online/articles/view/MM/dzm1.html; William Carton to the Texas Military Board, July 8, 1862, box 2-10/304, Foundry Collection.

[5] Charles W. Ramsdell, "Confederate Control of Manufacturing," *The Mississippi Valley Quarterly Review*, 8 (1921), 234–235. The Shelby Iron Works in Alabama experienced significant problems with obtaining manpower sufficient for operating its iron production facilities. To understand the manpower issues faced by Confederate military contractors in the eastern theater, see Frank E. Vandiver's three-part examination, "The Shelby Iron Company in the Civil War: A Study of Confederate Industry," *Alabama Review*, 1 (part 1, Jan., 1948), (part 2, Apr., 1948), and (part 3, July 1948).

[6] William Carton to the Texas Military Board, Jan. 9, 1863, box 2-10/304, Foundry Collection; Patricia L. Faust, "Conscription," *Historical Times Illustrated Encyclopedia of the Civil War* (New York: Harper and

agents for the state and their contractors acquired and hauled in stone bricks, lime, lumber, nails, and shingles to erect the foundry building. One Austin resident recalled the structure as a large wood building located mid-block between Trinity and Neches Streets. The property included a 155-foot lightning rod and a walled well, probably for convenience, notwithstanding the proximity of Waller Creek itself. The $14,115.25 of capital equipment brought in and installed probably included the steam engine and other machinery purchased by Carton. The foundry began to amass its inventory of metals during this time, which included 83,424 pounds of copper and an unspecified quantity of iron and old castings. Although the foundry probably acquired much of its pig iron from Nash's Iron Works in Jefferson, Texas, the distance and poor transportation system forced Carton's agents to scrounge for scrap metal for recycling into hinges, bracings, nails, and other such uses. Odd lots of iron could be had from surrounding areas such as the village of Prairie Lea, but those sources were sporadic. During this time the foundry also amassed uncut timber and wood parts such as wheel spokes. Industrial tools, lubricants, and fuel in the form of coal and wood comprised the consumable manufacturing inventory accumulated during the first few months of operation. Slaves may have built the structure and sunk the well because the state paid for "board of negroes," but the records do not indicate who provided the slave labor.[7]

Foundry work consumed inventories of raw materials and soon required the replacement of initial stocks. Supplies of iron across the Confederacy were scarce, and factories were always looking for opportunities to acquire sorely needed components for production. Roessler's contacts in Austin and surrounding counties must have been extensive, and his position as foundry draftsman and clerk must have been well known throughout the area. In Caldwell County, Roessler located "several thousand lbs. rodiron [*sic*] of the size needed in the foundry." At the price of

Row, 1986), 161. In November 1863 the board received notice from the foundry superintendent Ralph Hooker that he had employed a paroled prisoner of war taken at the fall of Vicksburg. Using men who were released on their word of honor not to assist in their country's war effort until properly exchanged always created a certain level of mistrust that led eventually to the interruption of paroles. The board had to determine that such work met the conditions of current parole agreements and then notify the appropriate enemy parole officer. See Ralph Hooker to the Military Board, Nov. 20, 1863, box 2-10/304, Foundry Collection. Hooker's personnel recruiting appears to have had a certain level of initiative that would put him at odds with the superintendent of the State Cap Factory. In December 1863 Hooker petitioned the board to release from the cap factory a machinist named "E. B. Kittedrige" for making tools to bore cannon barrels. The Texas State Foundry, like all other defense operations, needed trained workers. The demand pitted defense industries against each other as well as against the military enrolling officers and private contractors; see Ralph Hooker to the Military Board, Dec. 5, 1863, box 2-10/304, Foundry Collection.

[7] Data and description from undated accounting work papers, box 2-10/304, Foundry Collection; Joseph Jones, *Life on Waller Creek* (Austin: M. R. Tantlus, 1982), 60; Robert L. Kerby, *Kirby Smith's Confederacy: The Trans-Mississippi South, 1863–1865* (New York: Columbia University Press, 1972), 70.

Palm School is located on Austin's Armory Block Site, the location of the state foundry. *Photograph courtesy of the author.*

twelve and a half cents per pound, the iron was a bargain—half the customary price paid by the foundry (from indications of foundry daybook entries). Accordingly, Roessler alerted the board to take immediate advantage of the price or authorize Roessler to make the purchase himself.[8]

By January 1863, four months after the buildings at Waller Creek went up, the foundry had begun incurring costs for "one field battery consisting in [*sic*] 6 guns, 6 gun carriages, 12 limbers, 6 caissons, 1 forge and 1 battery wagon." In late January the foundry committed fifteen hundred pounds of cast iron, probably enough metal for casting two six-pounders or one twelve-pound Napoleon-styled cannon. While foundry records do not confirm who gave the order for this battery, it likely originated with the board. This first project scheduled a crew of at least six men for completion of the battery and its components. Depending on the work that day, a crew could number as many as fifteen, counting helpers. Almost every day, at least one blacksmith, one to two carpenters, a molder, and two helpers (either apprentices or unskilled labor) worked on the gun battery. Machinists operated the hoists and boring devices. Work continued on the battery six days a week, Sundays usually being a day off from the project. On only one Sunday in April 1863, for instance, did any work occur, which appears to have been in building

[8] A. R. Roessler to the Texas Military Board, Apr. 10, 1863, box 2-10/304, Foundry Collection.

one of the gun carriages or limbers. On the day before, the foundry had committed 133 pounds of rod iron for axletrees, suggesting a sense of urgency in completing some of these units. Blacksmiths and carpenters earned five dollars for a full day, and slave owners received one dollar a day for their slave's labor. Wages do not reflect overtime for the men who worked on Sundays.[9]

The work concentrated, at first, on the carriages, limbers, caissons, forges, and battery wagons. Lumber arrived from Cameron, approximately sixty miles northeast of Austin. Gibbon recommended white oak for the various battery components such as the caisson and limber, but with the variety of oak trees in central Texas, it is likely that contractors used native post oak and live oak. Each wheel of the gun carriage, limber, and the other horse-drawn wagons had fourteen spokes that dished slightly inward to allow flexibility across rough ground. Carpenters had to shape each spoke and set it into the wheel. Blacksmiths tapered the axle downward to accommodate the dished angle. In one battery alone there were around 960 spokes to set. Such intricacies meant that building even the gun limbers required careful attention from experienced workers, who were in short supply because of military conscription.[10]

In April 1863 Roessler, still a draftsman with the foundry, petitioned the board to allow him to attempt a battery of field pieces at Waller Creek. Roessler's proposed battery consisted of four six-pound guns and two twelve-pound howitzers. Although the foundry had already committed in favor of iron-only gun tubes, Roessler assured the board that his bronze guns could be cast using the copper inventory on hand ("I will have copper properly refined"), and he could use the equipment already at the foundry. The board allowed Roessler to proceed.[11]

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[9] Journal of the State Foundry, Day Book #98, p. 36 (January 1863 to February 1864), box 2-10/304 Foundry Collection (cited hereafter as Day Book #98). This order precedes (and validates) a decision made at the Trans-Mississippi governors' conference at Tyler, Texas, in August 1863. There, the collective leadership declared their determination to provide one hundred cannon for the Confederacy. See U.S. War Department, *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* (4 series, 70 vols. in 128; Washington, D.C., U.S. Government Printing Office, 1880–1901), ser. I, vol. 22, part 2, p. 1005. Conjecture regarding the type of gun is based on barrel weights listed in several texts and web sites. The most helpful overall site is the Civil War Artillery Page, (http://www.cwartillery.org /aguns.html), which includes several different kinds of tubes by caliber and foundry.

[10] Gun carriages supported the bronze or iron gun barrel and served not only as the gun platform but also as the maneuvering component. Limbers were a two-wheeled cart—an axle with wheels on a framework supporting an ammunition chest—and were used to pull the gun carriage. Limbers also attached to a caisson, which looked similar to a limber, except that it held two ammunition chests and a spare wheel. In addition to the gun carriage, the limber, and the caisson, a complete battery had at least one battery wagon, which carried tools, spare parts, and rough materials (bar iron, for instance) to make replacement parts, and a traveling forge wagon which contained an anvil and blacksmith tools. John Gibbon, *The Artillerist's Manual* (New York: D. Van Nostrand, 1860), 113. The Civil War Artillery Page, The Equipment, http://www.cwartillery.org/artequip.html.

[11] Act of January 11, 1862, Section 1, "Legislation," box 2-10/306, Foundry Collection; A. R. Roessler to the Texas Military Board, Apr. 6, 1863, box 2-10/304, Foundry Collection.

On April 22, 1863, Roessler sent the board a miniature cannon, 1:8-inch scale, cast of a copper and iron alloy. Admitting that the alloy lacked tin, which would improve the gun's quality, Roessler nevertheless defended the gun's strength (with its slight excesses of iron traces) and sought the board's approval to continue the project.[12]

The project was disrupted by a personality dispute. Roessler faced opposition from William De Ryee, supervisor of the Confederate government cap factory in Austin and a rival with Roessler for chemicals, metals, and workers. De Ryee had disparaged Roessler's qualifications to the board, and an infuriated Roessler complained. Forwarding testimonials of his credentials from men known and respected by the board, Roessler reminded board members of his own service in the Austrian Artillery, eminently qualifying him in this field. His protests were followed a week later by John Simpson a metal worker at the foundry who likely was Roessler's partner in the battery project. Simpson complained to the board alleging interference with the casting of a model of the Roessler gun barrel. The board had few men in the state who were qualified to produce cannon. And now there was a quarrel among them.[13]

Roessler left the foundry before a board decision and before completion of the four-gun battery. Although he had not actively sought the superintendence at Waller Creek, he was entrusted with its overall operations—and the responsibility ran him afoul of the Travis County conscription authorities. Phineas DeCordova, the military board's secretary, impressed the slave who ran the steam engine at the foundry and sent him to work in his fields. Roessler searched for an immediate replacement to avoid shutting down foundry operations for lack of an "engineer." He found an experienced man and secured his furlough by leveraging the foundry's close ties to the Texas Military Board. The Travis County assistant enrolling officer, Captain Holman, was furious and threatened Roessler with four years imprisonment, although the actual nature of the violation is not clear. Roessler assured Governor Lubbock, the board's head, that he had acted only as his predecessor, William Carton, had told him he had authority to do. Although Roessler promised not to repeat this act in the future without the board's approval, his bitterness over this and other incidents apparently took their toll, and in May 1863 he resigned.[14]

[12] A. R. Roessler to the Texas Military Board, Apr. 22, 1863, box 2-10/304, Foundry Collection.

[13] Ibid., May 14, 1863, box 2-10/304, Foundry Collection. De Ryee, a Bavarian immigrant, was the state-appointed chemist who was one of few men in the Confederacy who knew how to make fulminate of mercury, a critical compound in munitions production.

[14] A. R. Roessler to F. R. Lubbock, May 2, 1863, box 2-10/304, Foundry Collection; A. R. Roessler to the Texas Military Board, May 18, 1863, box 2-10/304, Foundry Collection. In his subsequent letter to the board settling his accounts, Roessler indicates what the foundry had accomplished during his tenure.

Between May and the end of June 1863, the foundry undertook two industrial manufacturing projects simultaneously with ordnance production. Two carpenters and one carriagemaker, supervising a slave gang, spent thirty-five days constructing a "morticing machine," presumably for use on battery support vehicles and other projects anticipated by the board. Concurrent with this project, the foundry undertook the installation of a cupola furnace. Together, both projects consumed approximately six hundred feet of lumber, four hundred pounds of rod iron, and fifty pounds of steel, one of the foundry's most expensive commodities. In addition to the labor customarily found in the foundry work crews, at least two African Americans drew independent wages for the cupola furnace installation. "Blackboy Bob White" drew three days' wages for general labor, and "blackboy Tom Hill" drew four days' pay as a stonemason.[15]

An additional 17 percent of the foundry's 1863 expenses supported another wartime industry, De Ryee's percussion-cap factory, located in the old land office building in Austin, just off Congress Avenue between Eighth and Ninth Streets. To manufacture the ignition device in the cap-and-ball weaponry predominant in this war, the foundry had fabricated a percussion-cap machine during the last three months of 1862. The project may have had the effect of entangling the affairs of the two war industries as they competed with each other for both men and resources. Before Hooker and De Ryee traded accusations, Roessler complained to the board that the foundry had encountered difficulties with special orders due to the cap factory's monopolizing a certain lathe in the foundry. De Ryee coolly denied the allegation, informing the board that "the subject lathe has been mostly used for purposes of the foundry, the statement of Mr. A. R. Roessler notwithstanding." In spite of the squabbling between De Ryee and Roessler and De Ryee and Hooker, the foundry provided industrial support to Austin's munition factory.[16]

The crews allocated to cap-factory projects usually had three members: a machinist, a carpenter, and a draftsman. Occasionally, the crew would expand with the addition of an engineer or an extra carpenter. The projects included machine production or repair, with some occasional small tool, such as a vice, crafted for use in the cap factory. During March 1863 the foundry built a rolling machine for use in the cap factory which con-

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Among the things for which Roessler took credit was that the foundry had use of a crane built for the molders, had made iron and wood components for field batteries, made machinery to bore out cannon, made shells and canister for howitzers, made patterns for twelve-pound howitzers (but no actual guns were mentioned). The next supervisor, Ralph Hooker, persuaded him to return and detailed Roessler as clerk in July 1863.

[15] Day Book #98, pp. 85–86.

[16] Day Book #98, pp. 99–121; Larry J. Gage, "The City of Austin on the Eve of the Civil War," *Southwestern Historical Quarterly*, 63 (Jan., 1960), 432; A. R. Roessler to the Texas Military Board, Apr. 19, 1863, box 2-10/304, Foundry Collection. De Ryee's reply is written on Roessler's letter.

sumed twenty-seven and a half pounds of valuable steel as well as several pounds of rod iron and cast iron. In May 1863 the foundry made a cap-filling machine. This twenty-eight-day project required two hundred feet of lumber and twenty-five pounds of steel, as well as the efforts of blacksmiths, patternmakers, machinists, and helpers. Total costs allocated to the cap factory grew from $191.75 in January to a cumulative $9,332 by the end of December, evidence that the Waller Creek enterprise had spent as much time on defense industry support as it had devoted to actual defense production.[17]

In September 1863, the board had to concede its failure to produce ordnance. Ironically, however, the foundry's good name rested on accomplishments that accounted for only 7 percent ($3,954) of its 1863 operations. In a report to the legislature, the board stated, "The foundry has however been of great use to the farmers. . . . The necessity of saving the grain crop where ever [*sic*] grown caused the issuing of the necessary orders to the Superintendent to have the repair of the agricultural implements attended to. Repairs have been done for citizens distant over 100 miles from Austin." Both Carton and Hooker received infrequent requests through the board to assist various farmers in the vicinity. The occasional civilian projects did not appear to conflict materially with the major business at hand, and the work appears to have been well received.[18]

Archives probably do not contain all of the requests that arrived at the board, but several different letters requesting spare parts or repairs from the foundry have survived. A typical request came from L. N. May and N. R. Land, addressed to DeCordova, asking that the foundry cast "two cast iron cog wheels about 8 inches in diameter." Faced with a wheat crop ready for harvest, the men sought the kind of repairs customarily provided by local blacksmiths, some of whom probably worked at the foundry.[19]

Agriculture projects produced the only income among all the projects documented in the foundry daybook. Hooker reported $833.70 income from August 2 to September 28, 1863, although the foundry had spent somewhat more than $1,300 in manpower and supplies. Payments arrived in cash and barter, not surprising in a frontier and agricultural economy. In return for repairs (patterns for wheels and pinions, as well as actual fabrication), William McKaughan paid the foundry in scrap iron and cash. One individual paid a five-dollar wheel repair with ten bushels of corn. In October the foundry took in 1,105 pounds of flour in return for

[17] Cannon production and cap-factory support totaled $18,795 in 1863. This combined total is less than the tools/maintenance expense figure of $28,329.

[18] "Report of the Acts of the Military Board," Sept. 30, 1863, draft report, box 2-10/306, "Military Board Reports" (cited hereafter as "Military Board Reports") (Texas State Archives, Austin).

[19] Day Book #98, pp. 151–167; L. N. May and N. R. Land to DeCordova, Apr. 22, 1863, box 2-10/304, Foundry Collection.

casting a shaft for a gristmill, and sold the flour for fifteen cents a pound. The foundry conducted most of its business in cash, however, and jobs ranged from a five-dollar wheel repair to $143 to cast and replace roller wheels on a threshing machine.[20]

Agriculture projects followed the growing season. The most common request during the peak season was thresher and reaper repair. The cost elements increased to $440 in May, almost twice the April level, and decreased in September. In May alone, the foundry recorded twenty-four entries documenting the production of mold patterns, casting iron, and fitting replacement parts for various farm implements. These projects did not appear daily, even during the busier period between May and September. In June there were eleven days between thresher repairs, and in July there was a two-week gap from the end of one implement repair until the beginning of the next. Machinists and blacksmiths had to fashion gear wheels, pinions, rollers, and other components from the inventory of scrap iron and rod iron gleaned from the surrounding area. As with the other projects, the crews worked every available day except Sunday.[21]

The extent to which the support of agriculture competed with the other projects is not readily clear. On Friday, May 1, the foundry had a blacksmith crew working in cannon production, foundry tools, and cap-factory support, as well as fabricating parts for G. H. Banks's thresher. Of the nineteen different days in May during which the foundry recorded expenses for farm equipment repairs, there were projects in the other three areas on only two of those dates (May 1 and May 4). On May 8 only two other projects (cannon production and tool manufacturing) had activity in addition to the agriculture business. During the other days occupied with farm equipment repairs, only the artillery battery recorded expenses. Whether this reflects an intentional scheduling of workers and resources, lack of adequate manpower, feuding with De Ryee, or micromanagement from the board through DeCordova is difficult to say. If Hooker found this aspect of foundry business troubling, he never expressed it in any reports to the board. What is significant is that the board boasted of its role in grain harvesting and farm support to explain the foundry's inability to fulfill its original purpose. The anvil of Mars was, instead, the anvil of Ceres.[22]

[20] Day Book #98, pp. 164, 165.

[21] Ibid.

[22] Ibid. The farmers were not the only ones who benefited from the foundry's talents. In May 1863 the Texas Military Board received a request from W. B. Pearce for "a small amount of castings" for doors and a furnace which he intended to use to bake "hard bread" (probably hardtack) for the army. In December the foundry credited $303.50 in payment of this order. On December 16, 1863, Phineas DeCordova, board secretary, delivered three yoke of oxen valued at $750 in payment for one wagon made for him at the foundry.

In November 1864 the legislature abandoned attempts to fabricate cannon. The foundry passed from state control to private supervision when W. S. Reed and Company received a contract to produce five batteries of six guns each for eight hundred dollars a gun, using the state facility at Waller Creek. The following April, Lee surrendered. On July 25, 1865, Union troops entered Austin. Robert Elgin inventoried the foundry. There he found the fifteen-horsepower steam engine brought to Austin by William Carton. Foundry implements included an assortment of pulleys, drills, fans, cupboards, benches, furnaces, anvils, and other equipment. The inventory also included military ordnance: two twelve-pounder howitzers, eight six-pound guns, twelve caissons, ten gun carriages, and twenty-two limbers, all mute and defiant proof that the foundry did, in the end, accomplish its purpose, albeit too late to affect the fighting. Shortly after the war, fire destroyed the foundry buildings and Texas's military park was gone.[23]

Waller Creek foundry emerged from a wooded site in only four months. At the beginning of 1863 it attempted to fulfill the public trust to provide Southern armies with modern weapons. The state's foundry was not ready for that task. Like the rest of the South, Texas lacked significant industrial capacity. Its people had little background for that kind of venture, and the physical plant was almost nonexistent. In its first year the state foundry's production of artillery components and cap-factory machinery accounted for only one-third of the foundry's output measured in dollars. Making its own specialized tools and rebuilding some of its capital equipment, such as the cupola furnace, consumed just over half of the foundry's production costs. Until November 1863 the foundry had made no significant progress to complete either six-pounders or twelve-pounders for state artillery units. Faulty equipment, inexperienced workers, and internal bickering made it impossible.

On December 9, 1955, the state auditor's office released a report on the Texas Military Board's use of cotton-bond proceeds to determine whether or not the board used the proceeds in rebellion against the United States. Bond revenues provided the financial means to acquire uniforms, medicines, and implements of war. The auditors made a detailed listing of bonds and proceeds, recording the dedicated use of each public obligation. Cotton bonds authorized by the 1861 legislature provided nearly forty-three thousand dollars to the state foundry. Because the Waller Creek foundry had used bond revenues in support of the rebel-

[23] Report to the Honorable H. S. Stockdale, Nov. 1864, box 2-10/306, "Military Board Reports"; Robert M. Elgin to the Texas Military Board, letter and inventory, July 25, 1865, box 2-10/306, "Texas Military Board" (Texas State Archives, Austin); Jones, *Life on Waller Creek*, 61.

lion against the United States, Texas repudiated the public obligation since their purpose did not represent "usual and proper governmental activities."[24]

Ninety-three years after the foundry's struggles began, the state of Texas closed the doors on the furnaces and cannons at Waller Creek.

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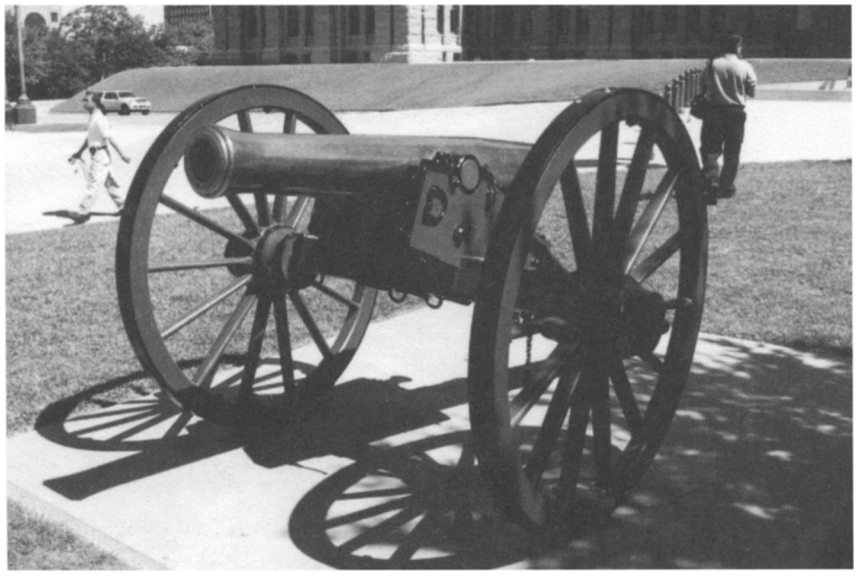
[24] Report of the State Auditor, Dec. 9, 1955, box 2-10/298, "State Audit Report" (Texas State Archives, Austin), 15.



This twelve-pound Napoleon located at the state capitol is the type of artillery the foundry at Waller Creek hoped to produce. *Photograph courtesy of the author.*